

Imaging & Microspectroscopy Beamlines at the NSLS

Beamline	X26A	X17C, X20A	X15A	X2B	X1A	U10B, U2A, U2B, U4IR
Technique	hard x-ray microprobe and micro-diffraction	hard x-ray microdiffraction	diffraction-enhanced imaging	x-ray microtomography	soft x-ray microprobe and microtomography	infrared microspectroscopy and imaging, laser micro-Raman
Spatial Resolution	10 μm	X17C: $\sim 1 \mu\text{m}$ X20A: $\sim 5 \mu\text{m}$	10 – 50 μm	$\sim 1 \mu\text{m}$	30 – 50 nm	2 – 10 μm (diffraction limit)
Spectral Resolution	1.5 eV	X17C: 13 keV ~ 0.22 keV; 59 keV ~ 0.35 keV X20A: 0.03 keV	10^{-4} dE/E	dE/E ~ 0.5	0.1 – 0.5 eV	1 cm^{-1}
Wavelength range & bandwidth	3 – 30 keV	X17C: 10 – 80 keV X20: 6-11 keV	monochromatic, 12 – 50 keV	6.5 – 30 keV	250 – 800 eV	10 – 10000 cm^{-1}
Method of data collection	mostly fluorescence, some transmission	x-ray diffraction and fluorescence X17C: energy dispersive X20A: monochromatic	phase contrast	transmission	transmission	transmission, reflection, ATR
Detectors	microprobe: Canberra 1-element Si(Li), 9-element Ge diffraction: Fuji image plates, SMART 1K CCD diffractometer	X17C: Canberra Ge detector X20A: Bicron and Si(Li) detectors	commercial image-plate, high-resolution x-ray film	CCD camera	custom: multiwire proportional chamber, segmented solid-state silicon detector	Bolometer, MCT-A, MCT-B, DTGS, Cu-doped Ge, optical CCD
Software	Custom: EPICS and IDL-based	X17C: Custom: EPICS and IDL-based X20A: Custom: spec	Custom: C, IDL-based	Commercial and Custom: C	Custom: C++, Qt, IDL-based	Commercial: Nicolet and Bruker software
Contact Information	Tony Lanzirotti (lanzirotti@bnl.gov)	X17C: Ho-Kwang Mao (hkmao@bnl.gov) X20A: Jean Jordan-Sweet (jlj@bnl.gov)	Zhong Zhong (zhong@bnl.gov)	John Dunsmuir (john.h.dunsmuir@exxonmobil.com)	Chris Jacobsen (Chris.Jacobsen@stonybrook.edu) Sue Wirick (swirick@bnl.gov)	U10B: Lisa Miller (lmiller@bnl.gov) U2A: Rus Hemley (hemley@gl.ciw.edu) U2B: Mark Chance (mrc@aecom.yu.edu) U4IR: Larry Carr (carr@bnl.gov)
Beamline Phone	x5626	X17C: x5917 X20A: x5720	x5615	x5602	x5601	U10B: x5510 U2A: x5502 U2B: x5787 U4IR: x3634